

Application: 10/516,746
IDS Filed: July 18, 2007
Inventor: RITCHHEY, Jonathan G.
Docket Number: 266438.00009

Document DE 197 34887

[Page 2, column 2 at line 15]

The manifold 5 on the one hand is connected by valve 11 to an area from which humid air can be inducted and on the hand connected by valve 12 to a condenser in which the humidity in the air is liquefied.

[Page 2, column 2 starting at line 36]

After the solar radiation begins, valve 9 (91respec.-) and valve 11 close and valve 12 opens. The sun lets the temperature r1.sc in the absorber that releases the humidity which goes into the condenser 13 by way of the manifold in the form of steam and turns there into a liquid. The condensate then runs into a storage tank, not shown, which, if so desired, can form part of a water purification unit. The increase of the partially compressed air inside the tank caused by leakage and evaporation can be limited to a predetermined factor by a control gear attached to valve 9.

Claim 1

Device for extracting water from the air using a hygroscopic absorption material, intermittently filled with damp air and exposed to a source of heat, characterized by the fact that the device includes a watertight container (1) for the absorption material (2) with at least one instrument (4) for injecting damp air and drawing out water vapour, as well as with an opening (6) for the extraction of dry air and for connecting a vacuum pump (8), as well as a condenser (13) that is connected to the instrument (4) by a valve, whereby processor-controlled valves (7, 9, 11, 12) allow operation in two phases, of which the first produces the injection of damp air into the container (1), and the second a regeneration of the absorption material (2) and condensation of the released water vapour.

Claim 6

Device as in one of claims 1 to 5 is characterized by the fact that in case of a solar heat source, the container (1) has the shape of a flat tub the sides of which are insulated against the heat, except for the side exposed to the sun's rays.

Claim 8

Device as in claim 7 is characterized by the fact that the coating (3) is made of [black chromium] or titanium oxynitride.